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Session 72PD Trends in Large Health Claims

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Summary: This panel discusses trends in large health claims, recent experience, and future expectations. Related to this, discussions include the impact of managed care on large individual health claims under self-insured programs and under an HMO setting.

Mr. Daniel L. Wolak: I'm from General & Cologne Life Re in Stamford, Connecticut, where I'm vice president and group actuary. Larry Jackson is a second vice president in the group reinsurance area at Lincoln Re. After Larry will be Tony Wittmann who is vice president and chief actuary at Pacific Care Health Systems, which is an HMO in Orange County, California. Finally, we have David Olsho who has been with Howard Johnson's, which is now part of the Merrill Lynch family, for the past 13 years.

I will present the current health care environment. The genesis of today's session arose from the discussion of a health reinsurance session held at the 1998 New York City SOA meeting. At the end of that session, there was some discussion on trend for large health claims, i.e., claims in excess of a high deductible. As a group, we didn't seem to have a consensus at that time. Because of that, I volunteered to moderate this session, set it up, and try to focus on one simple question. What is the trend for large health claims?

When I first discussed this topic with the panelists, we realized we had to define trend. Our definition of trend is the increase in health care cost from one year to

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the next without the impact of aging and age demographic changes here in the U.S. Our definition of large claims is claims in excess of a \$50,000 underlying deductible.

As the panel began to discuss this last January and February, we realized that this is a relatively challenging topic because none of us really have conclusive data to say exactly where trend is. We have certain limits. We are in a position to share data that each of us has and to give our own observations. As I said, I'm going to first review the current environment. Next up will be Larry Jackson who will talk about an HMO large claim analysis. Tony Wittmann will discuss factors impacting large claims, and David Olsho will quantify the impact of managed care on large claims based on a study he completed previously. I'll finish up with a self-insured large claim analysis, and then we will get questions and answers.

To start out, published data from an ABR Information Services Report listed the change in premiums from March 1998 to 1999 for non-HMO business as 7.85%. For HMO business the change was 6%. It was reported in *Best's Review* that their estimate of underlying medical trend in 1998 was 6% and has moved up to 9% in 1999. With underlying trends seeming to be in the 6–9% range what have I been seeing? I developed a simple test of trend. I use this simple illustration Insert 1 when dealing with nonactuaries. Generally, it's applied to a particular block of business, especially stop-loss business. The purpose of sharing this with underwriting and marketing is to demonstrate a simple principle, which is if you're going to improve a loss ratio, your rates have to increase faster than trend.

INSERT 1
SIMPLE TEST OF TREND
APPLIED TO SPECIFIC STOP LOSS EXPERIENCE

Projected Combined Loss Ratio for 1997	100%
-Reduce by Actual Rate Increases in 1998 (Benefit Adjusted)	15%
+Increase by Estimated Trend	(Formula produces an 8% trend estimate.)
Projected Combined Loss Ratio for 1998	=93%

But in this simple projection, first, we take a projected combined loss ratio of 100% for 1997; it is a loss ratio, which, by this time, would be close to fully developed. Second, take into account how much rates actually increased from 1997 to 1998 (which is 15% in the illustration). Third lag out the 1998 loss ratio which is 93% in the illustration. From this point, trend is solved for. Of course, there are a few different factors that are impacting trend in this simple illustration. But as I go from block to block I generally seem to solve for trend for the 1997 period in the 6–12% range. Because underlying trend is moving up to 6–9% and this little analysis

illustrating trend on larger claims is not more than 12% over the last year or two, I next will have Larry Jackson discuss what is happening with large HMO claims.

Mr. Larry J. Jackson: At Lincoln National I work in the HMO underwriting and pricing area, and when my boss volunteered me for this panel, my first thought was there's really no end to trend. It keeps going and going, like the Energizer bunny. But then I decided there is an end to trend. In fact, *end* are the last letters of trend. If we can just get rid of the "t" and the "r," then we can find an end to trend!

First, I need to give you a little bit of background information to help you put this information in context. You need to know something about the data I'm presenting for it to really make sense. First of all, we look at our block of business on an effective year basis. When you see the years up here we're talking about an effective year basis. That means cases for 1997 that were sold in either January or December fall under the 1997 effective year. In particular, the December cases collect premium from December of 1997 all the way through 1998, but we still classify that as 1997 business. Claims can actually be reported up to one year past the end of the underwriting year. We can have claims falling into the 1997 underwriting year that were paid in 1997, 1998, 1999, and even into 2000. When we think of it that way, we realize that it might not really be complete, but most of our business is from January 1. It still should be valid to talk about.

Second, our block has changed significantly from the time period we're going to be reviewing—1994–97. In 1994 it was almost entirely hospital inpatient only premium, and now for the 1997 underwriting year, well over half our block has premium coming from cases that also have outpatient coverage, professional services coverage, and prescription drugs. If you stop to think about it, that alone might tell you something about what's happening with trend because the HMOs perceive that they have exposure not only to inpatient claims but also to outpatient claims and physician claims.

Third, our block has grown significantly over that time period. We basically tripled in size over the time period from 1994 to 1997. That's important to keep in mind. Our average hospital deductible is probably on the order of \$75,000–80,000. Finally, a key point is the data that I'm looking at contains both in-network and out-of-network claims. The in-network claims follow what the HMO pays, and they typically negotiate per diems on the order of somewhere between \$800 and \$1,200 for medical surgical stays and on the order of \$1,200–2,000 for intensive care days. That alone is going to help dampen the claim costs that we're going to be taking a look at. Also, on the out-of-network piece, we're following what the HMO pays. It's typically billed charges or a percentage off billed charges. One of the things we have in our contract, which helps dampen the claims that we see, is an average

daily maximum, typically on the order of somewhere between \$2,500 and \$5,000. Even if the length of stay average cost is \$7,000–10,000 per day, we're going to cut that back. Throw in coinsurance where we're reimbursing probably 90% on the in-network side and 80% on the out-of-network side. We have some things in our contract that are going to be dampening the impact of trend on large claims.

Given that background, let's go to Table 1 which shows the annual change in claim costs based on our hospital inpatient coverage for HMO commercial business. This is the largest group that had reasonably homogeneous ties over that time period. It shows the average annual increase from 1994 to 1996 for \$50,000, \$100,000, and \$150,000, the average increase from 1995 to 1997, and then the average annual increase over the whole time period. The first thing you might think when you look at that table is our data are not 100% credible, and you would be correct. With that observation in mind I still think the information is valid because some definite patterns have come out when I was looking at this. I only show three deductibles in the table, but I did studies on lots of other deductibles, and the pattern definitely came out that from 1994 to 1996, we saw a decreasing to level trend up to \$200,000. At \$200,000, it was increasing. From 1995 to 1997, and in particular from 1996 to 1997, we saw an increase in our claim costs at those deductibles. The pattern was decreasing to level and then increasing in the recent past.

TABLE 1
ANNUAL CHANGE IN CLAIM COSTS
HMO—COMMERCIAL HOSPITAL ONLY

Deductible	1994 to 1996	1995 to 1997	1994 to 1997
\$ 50,000	-37.5%	94.0%	7.3%
100,000	-13.7	18.0	0.8
150,000	8.3	11.7	19.3

Raw data includes:

1. In network and out of network claims
2. Per diem limits on in network claims
3. Average daily maximums on out of network claims

What are some of the causes for the increase in claims costs? Table 2 shows the annual change in frequency for the same population over the same time period, and if you take a look at the numbers again, you see the patterns remain the same as what we saw in the prior table. From 1994 to 1996 for deductibles less than \$200,000 I found a level-to-decreasing frequency, decreasing less as we moved closer to a \$200,000 deductible. For 1995–97 it was increasing, and then you see the three-year average change. The frequency change definitely follows the claim-cost change. What happens if we take a look at the average claim size over that same time period? The patterns don't follow [Table 3]. At \$50,000 where we saw a decreasing pattern of claims costs followed by an increasing pattern, it's exactly opposite. At \$200,000 where we saw a constantly increasing claims cost, it's

decreasing the whole way. For the 1994 to 1997 period, our average claim size has remained stable. It would appear, based on what I've looked at, that the reason our claim costs are increasing is due to frequency because the average claim size has been staying more or less the same.

TABLE 2
ANNUAL CHANGE IN FREQUENCY
HMO—COMMERCIAL HOSPITAL ONLY

Deductible	1994 to 1996	1995 to 1997	1994 to 1997
\$ 50,000	-46.4%	139.1%	7.1%
100,000	-3.0	7.3	6.6
150,000	12.0	12.3	20.6

Raw data includes:

1. In network and out of network claims
2. Per diem limits on in network claims
3. Average daily maximums on out of network claims

TABLE 3
ANNUAL CHANGE IN AVERAGE CLAIM SIZE
HMO—COMMERCIAL HOSPITAL ONLY

Deductible	1994 to 1996	1995 to 1997	1994 to 1997
\$ 50,000	16.6%	-18.8%	0.2%
100,000	-11.0	-6.5	-5.5
150,000	-3.2	-0.6	-1.1

Raw data includes:

1. In network and out of network claims
2. Per diem limits on in network claims
3. Average daily maximums on out of network claims

Given what we have with hospital inpatient data, where there has been significant controls with per diems and average daily maximums, if you include outpatient and physician drug costs (also an area we're seeing some pretty dramatic changes), we definitely are seeing an upward pressure on trend. What are some hypotheses for why the claim costs have changed so much? I'll present some, and we can pursue them a little bit farther. The first hypothesis for why claim costs are increasing is that over this time period we've probably seen a constantly increasing pattern in costs. Costs have been continually increasing, but the managed care element of HMOs has been able to push the utilization down by keeping the bed days down per 1,000. Perhaps managed care has done about all it can do on managing the bed days per 1,000. Maybe we're going back to a more traditional trend where the cost increases aren't offset by utilization changes.

Second, maybe new technologies or standards of treatment are causing the increase to frequency. There's certainly aggressive care going on. Another hypothesis is the aging of the population. Another thing to point out about my data is that on our reinsurance block we do not get the census data. Part of the reason our claim costs

are increasing could just be because the demographics underlying our block are changing. There are certainly some high-cost drug therapies out there, and now it is possible to get a drug claim at a catastrophic basis.

The next four charts focus a little bit more on the causes of claims by deductible level and by underwriting year (Charts 1–4). Chart 1 is 1994. The cause of claims is down at the bottom and the percentage of our total claims that it makes up the bars. I might point out that the International Classification of Diseases-9th Revision (ICD-9) codes that make up those diagnoses are consistent with the SOA large claim study for 1991–92.

The chart illustrates that premature/congenital diagnosis accounts for the vast majority of claims, particularly, as you get to larger deductible levels of \$100,000 and \$200,000. For the rest of the categories for 1994, there are some significant claims coming from different areas, but it's fairly level. As we go to 1995 (Chart 2) we see that neoplasms have become a big source of claims at \$50,000. Transplants have now become a much bigger cause of the claims in 1995 as compared to 1994 and as compared to the rest of the diagnosis listed. Also the premature birth and congenital diagnosis claims stay pretty high.

Chart 3 shows 1996. It's even more obvious that transplants and the premature births are the major component of claims, at least for our block of business. For 1997 (Chart 4), transplants may have leveled off a little bit, but they're still a major source of claims along with the premature birth/congenital claims. I should point out that this is for our HMO block of business, and it's hospital inpatient only. We also do this study for some other blocks that we reinsured. In particular, you get different results if you look at the self-funded block of business. For that block, the circulatory claims become much more prominent, and premature births, while still a major cause of claims, are not as prominent. Depending on the population you're looking at, you can get some different results.

Let's discuss our five largest claims by underwriting year and just see what, if anything, jumps out from that. For 1994 the largest claim that we paid for hospital inpatient only was \$404,000 for a neoplasm of the brain. Next highest was a post-operative infection at \$287,000 and then \$269,319 for immune deficiency. A liver transplant at \$261,726, which we pointed out as being a major cause of claims, is fourth on the top five list in 1994. Fifth was a metabolic disorder at \$234,860. In 1995 the largest claim jumped up to \$535,000 and was for acute renal failure. Next was a cerebral cyst at \$459,005, and then a heart transplant at \$272,887. The fourth was a premature birth at \$267,717 and fifth was a pancreas transplant at \$258,183. As we looked at claims by diagnosis, we see some of the largest claims coming from those categories.

For 1996 the two largest claims were for premature births, one topping \$580,000. In 1997, we have a hemophilia claim topping the list at \$441,000. We still have a premature birth on the list. I thought it was interesting that up through 1996 our largest claim was increasing each year. The rest of the claims on the top five list in 1997 are all above \$291,000. The frequency of our large claims above \$200,000 was certainly increasing.

Another item worth pointing out is that the hemophilia claim from 1997, which was the largest that year, was kind of interesting because our largest claim ever is a hemophilia claim that occurred in the 1998 underwriting year. It hit our \$2 million maximum. Not that that's a big deal, but one item that was interesting about that claim is that three-fourths of the charges, \$1.5 million, came in an outpatient setting. Our theory had always been that if we're going to have a catastrophic claim that we're reimbursing on a reinsurance level, the vast majority of the charges, 80–90%, is going to come from inpatient charges. With this hemophilia claim the patient was receiving Factor 8 injections. Hemophilia is caused by a low-factor deficiency. This patient was receiving, on an outpatient basis, three, four, or sometimes five injections of this Factor 9 per week, and that amounted to \$1.5 million of claims over the whole year. Because of that, we found a claim on an outpatient basis where we didn't think we had exposure before. We've taken some actions to try to limit that. It's really more drug therapy than anything. Some large claims are surprising.

Let's discuss the diagnoses that we found as being a significant cause of claims for us, transplants and premature births. First, we took a look at bone marrow transplants over our HMO commercial population, to see how our rate-per-1,000 changed over the 1994–97 period. For the block as a whole, regardless of the deductible, we saw an average annual increase of 11% per year for bone marrow transplants, which are claims that over \$100,000. They are basically always a reinsurance claim to the HMO. If you look at where we have deductibles of \$100,000 or more, the rate of increase was even higher at 15.4%. Bone marrow transplants are certainly a significant cause of claim and certainly contribute to an upward pressure on trend. It doesn't seem like too long ago there was a big debate about whether bone marrow transplants were an appropriate treatment for breast cancer, and there was a big fight over whether it should be covered or whether it was experimental. We now cover that, but a study was recently released where they had five different control populations to test whether a bone marrow transplant was a significantly better treatment option. According to this study, there really was no difference between the results from the group of women that had regular chemotherapy versus those that had a bone marrow transplant. Now, of course, since the results didn't support what I think the researchers expected, it wasn't credible. They're going to continue to review that.

Let's discuss multiple births. We believe that if multiple births are increasing, this can significantly increase low-birth weight or premature birth situations. These data are from the National Biostatistics Report and are for the U.S. population as a whole. We are comparing the increase in the rate of twins on a per-1,000 basis and the rate of higher order births which is greater than two births to the same person. In the period of 1995–97, twin births were increasing at a rate of 4% per year, and for triplets or higher it was 16.8% on average. For 1996–97, rates have slowed down to 3.5% and 13.7%, respectively. But again as higher order births are contributing to low-birth-weight babies, you must factor in the dramatic cost that it takes to care for those babies. You have a significant source for an increase in your claim costs.

Pre-term is defined as gestation less than 37 weeks. Very pre-term is gestation less than 32 weeks. I think we have found a better indicator than the gestation time, which is the birthweight that determines whether you'll have a large claim or not. A low birthweight baby is defined as five pounds, eight ounces, and a very low birthweight is defined as three pounds, four ounces. The change from 1994 to 1997 is not too significant. What is significant is that the change from 1996 to 1997 in all those categories is higher. We're seeing an increase in frequency for those. The percentage increase in very low-birth-weight babies is a significant source of additional cost. This is another way that we've have pressure on trend.

Everything I'm seeing is putting an upward pressure on trend, and while I don't want to be considered the boy who cried wolf, it may seem like the big bad wolf is out there trying to blow our houses down.

Mr. Anthony J. Wittmann: As Dan mentioned, one of the objectives Dan had in mind for this panel was to take a look at recent historical trends and use that information as a base for forecasting future trends. At PacifiCare our primary motive for private contracting is capitation on both the physician and the hospital side, and I wondered if we really had enough claims that we paid, claims at risk, non-capitated claims to establish a statistically valid trend. It turns out that we really didn't. But we did attempt to measure hospital trends. We pulled inpatient HMO claims and exposures on a sample of our non-capitated business over the period November 1995 through September 1998. That effort resulted in a sample of 723 members with inpatient claims that were greater than \$50,000 paid. I didn't think it was really appropriate to report actual values in this presentation since they really did fluctuate all over the place. Over the entire sample for the period what I can really say is that we did experience a positive large claims trend. In addition, trend and base costs vary greatly by geographical area, which I think is attributable to a combination of general costs in the area and also the types of contracts in the

network. This is especially true with respect to the outlier provisions in hospital contracts and the strength of the medical management programs.

Consistent with Larry's data, newborns comprised a very high percentage of our claims. In comparison to the 1991–92 SOA study, I expected that there would be a lesser percentage for circulatory system and mental disorders claims, and our data were consistent with that expectation. There has been a lot of talk about growth in the area of transplants, especially bone marrow transplants. We did see that in our data. We didn't see any significant shift in the other diagnostic categories. A comparison of our HMO claims with the SOA large claim study by diagnostic category would show a little bit of apples and oranges because our data are for claims greater than \$50,000 paid for inpatient. The SOA data are for all charges greater than \$50,000. But I thought some of the results were intuitively reasonable. For the first three categories—infectious and parasitic diseases, the cancers, and the endocrine metabolic disorders—there wasn't much of a difference between our data and the SOA study. It looks like there is a slight difference in the neoplasm area, I'd like to believe it's significant, but I doubt that it is. We did see a much lower frequency of claimants for mental disorders and in the drug and alcohol category. It's pretty flat on the percentage of paid side. I expected the lower percentage is due to our strong emphasis on outpatient programs designed to prevent the acute episodes. In addition, our provider contracts are pretty much straight per diems with no outliers.

In the circulatory system, I thought our data would have a lower percentage than the SOA study also due to the strong emphasis on prevention in managed care. But it is likely that the advances in drug therapies and healthier lifestyles are contributing to that difference, which is significantly different from the SOA study. For respiratory system claims, it looks like there's a higher percentage on the HMO side. I'm not sure if that's significant or not or maybe some of the low-birth-weight babies' claims are leaking in there because of the respiratory distress syndrome. For digestive system diseases, results are similar to the respiratory category. For the congenital and perinatal category, the HMO data has a much larger percentage of large claims for this category as compared to the SOA study. At first it surprised me because our HMO has some good programs on maternal and child health, and our data on complex births is better than the industry average. After thinking about it and doing a little research, it made a lot of sense to me. I think there are three main reasons for this.

The first one is really selection in the HMO setting. It just costs a lot less to have a baby than when there are deductibles in coinsurance plans. Pregnancy is more or less a voluntary condition. I think that selection is part of the equation there.

The second factor is just the high reimbursement rates for neonatal intensive care unit (NICU) bed days combined with long lengths of stay. The average cost for these high-dollar cases is in the \$2,500–4,000 a day range, and the stays can be easily three to four months or longer. What is related to this is that our membership is concentrated more in the urban service areas, which typically have state-of-the-art neonatology centers and which are very costly.

The third and probably the biggest reason is just the increase and the ability and the willingness to keep premature infants alive. Some of these very tiny infants that years ago would have died are being kept alive with some breakthrough therapies. These breakthroughs have resulted in dramatic declines in the mortality rates for these very low birth weight infants. I did a quick net search, and I found a number of articles regarding ethics involved in this area. There are also legal issues with these claims.

The general economic health industry trends are a basic trend driver of large claims, and the underlying first-dollar trends have been fairly benign the last few years, especially on the inpatient side. Three to five percent trends or less have been common. In the SOA study 70–90% of the large claim dollars were associated with inpatient stays, depending on the deductible. I think it'll be interesting to see that inpatient percentage, and in the upcoming study I think it'll decline, but I don't really know how much it will decline. It'll probably still be heavily weighted to the inpatient side obviously. There are indications that hospital trend may be increasing as well as physician trend. Some of the hospital CPI numbers from early 1999 were up. I think CPI came out yesterday, and it was pretty flat overall for the last month and 0.2% month over month on the medical care index. CPI is 2.4% on medical care. I didn't see a hospital only number. If you combine increasing trends on hospital and physician costs with the 15% drug trends, we could easily see a 7% or higher baseline underlying trend. I just hope that if it's higher, it's not too much higher because health care costs as a percentage of total GNP have been pretty flat for the last few years.

For a specific health plan, provider contract provisions probably have as much effect on large claim trends, as anything else. Provisions limiting the outliers provisions will immunize against a large claim to a large degree, as Larry mentioned. Case rates for selected diagnoses negotiated in conjunction with the Center of Excellence program are a great way to control costs and also affect better outcomes. Case rates have long been used for transplants and some of the cardiac procedures, and now they're also being used for some of the most prevalent cancers, although it's kind of difficult to price those cancers due to a high degree of cost variability. The level of managed care in a health plan is a major trend driver. I've been lucky to have worked closely with a couple of really good case managers that not only save

money but also do the right thing for the members. Doing the right thing means the early identification of the potential high-cost cases and getting them on the case management radar screen. This is crucial in trying to control costs.

Another area is new treatments or new uses for existing treatments. There will be major breakthrough therapies coming out of biotech research, and they're obviously going to be very expensive. Government regulation, legal environment, and consumer awareness are all causing upward pressures on trend. In addition, there is the impact of trend from transplants. The data I'll discuss are from the United Network for Organ Sharing (UNOS) Web site. UNOS is the organ transplant registry for the Department of Human Services, and they have tracked all transplants since October 1987. This should be complete information. The total population which is increasing at about a 1% annual rate. The total number of organ transplants have been increasing at the rate of 3–5% in the last few years.

Kidney transplants are the most prevalent and the least costly of all transplants, especially when you consider the alternative of dialysis treatment that can cost about \$30,000 a year. The cost of a kidney transplant is usually in the \$40,000–50,000 range, although the extra costs, the evaluation period, the organ procurement, follow-up, and immunosuppressants can add another \$50,000 or so in the year of transplant. Liver transplants have increased dramatically. There has been a doubling over the time period from 1988 to 1996–97. It has reached more than 4,000. Heart transplants have flattened out in the last few years, and I couldn't find an explanation for that. There's a device called the heart-mate pump that has become part of the cost equation in the last few years, and it's been called a bridge to a transplant. It's implanted alongside of the diseased heart and assists in pumping blood to the rest of the body. Transplants for the other organs have also had some significant increases, though the numbers are much smaller.

Information from the Autologous Bone Marrow Transplant Registry (ABMTR) newsletter illustrates the increase in bone marrow transplants. The number has increased in the 1990s, especially for the autologous bone marrow transplants, which are used mainly for treatment for breast cancer. In 1990 the numbers were about 7,000, and they've gone up to approximately 30,000 by 1997. The allogenic transplants have increased to about 15,000 by 1997. The autologous is a person's own bone marrow transplant or the person's own bone marrow cells, and allogenic is bone marrow transplanted from a sibling. The use of bone marrow transplants for metastatic breast cancer, as Larry mentioned, is an area of quite a bit of controversy.

The same ABMTR newsletter shows that the increase in autologous bone marrow transplants is pretty much confined to the breast cancer category.

Disease management programs have been around for a few years now, and the data are starting to come in. I think this is an area that's very interesting because, again, it can save money and produce better outcomes.

Diabetes is the primary cause of end stage renal failure as well as the leading cause of amputations, blindness, heart attack, and strokes. An estimated 14 million U.S. citizens have diabetes. By tailoring programs that teach patients how to manage their disease and continually coaching them on the importance of monitoring, in this case, the glucose levels and keeping on their medications, significant decreases in acute episodes are being achieved.

Another disease management area that is showing some positive results is in the area of cardiovascular health. For example, initial results are showing 30% and greater decreases in hospitalization for congestive failure heart patients. These programs are expensive, but if they can avoid the cost, the pain, and the suffering associated with acute disease, they're worth it.

One of the original objectives here was to study trend leveraging. I took our claims and I took the charge levels, and I trended them at some base underlying trend rates and noted what the observed trends are. This would be basically just a mathematical demonstration of what happens if you trend real claims and what happens with leveraging. The leveraging can be mitigated obviously with provider contracting or medical management programs. If the base trend accelerates, the leverage trend also accelerates. The per member per month (PMPM) levels are illustrative but reasonable, and I set the 100% of charges with a zero dollar base trend rate at a \$9 PMPM and trended up from there. A 3% base trend rate at a \$50,000 level gets leveraged up to 5.1%, and 5% leveraged up to 8.6% and 7% to 12.1%. If you pay those claims at 60% of charges instead of at 100% of charges, the PMPM levels decrease dramatically, but the observed trend levels increase.

My closing thoughts are basically that large claims happen. One of our main roles in the SOA is to provide financing for the claims when they do happen. We also have an obligation to try to make as prudent use of the health care dollar as possible and to ensure value for those dollars that are spent. We also have an obligation to provide fair compensation to providers. If we keep to our mission of keeping members healthy, we can avoid some of these large claims and have a better result for everybody.

Mr. David E. Olsho: I think the common operative word, considering my presentation today, is menace. I'm going to talk about four different topics. First I'm going to talk about the effect of managed care on large health claims. Second, I'm going to present some comparison diagnosis data that is similar to what Larry

and Tony have presented. Third, I'll briefly discuss the SOA's large claims study, which has been referred to earlier. Finally, I'll give my future guess as to what trend is going to be.

I'll start by taking a somewhat different look at data that I presented at the SOA meeting in Colorado Springs in 1996. This is not exactly a rerun but it takes another look at some of the same data. The data are from a single carrier's large employer experience from 1990 to 1994. Unfortunately, they stopped writing stop-loss insurance around that time, and so I don't have any subsequent data. They had about, over that time period, 300,000 employees covered in multiple groups, about two times that, or 600,000, total covered lives. What I'm going to talk about with these data are claims over \$180,000. That's the way they were able to slice it for me. What I'm going to try to show is that managed care has a temporary decrease in large claims and also in first-dollar trends, but the long-standing upward price pressures still exist. As we reach the limit of managed care savings, we're going to end up again with a traditional high health trend.

Let's first look at the manual claim costs in Chart 5. These are indemnity manual claim costs from the stop-loss rating manual that we produced. There is a fairly large increase from 1990 through 1994. In fact the 1994 claim costs are three times the 1990 claim costs at the \$180,000 level. The clients' actual claim cost shown in Chart 6 had a fairly large increase from 1990 to 1991. That increase was about 66%. But from that point, claim costs had a very steady decrease through 1994 so that the 1994 claim costs are only about 8% higher than the 1990 claim costs.

Table 4 shows the annual change in the manual rate for \$180,000. As you see, the increase is 66% in the first year, decreasing to 13% by 1994, for a compound annual increase of 34%. The experience increase was 55% in the first year but the compound increase over the five-year period in the experience is only a plus 2%. Over the years there has been some downward pressure on the claims for my client.

TABLE 4
TRENDS IN LARGE CLAIMS

	90-91	91-91	92-93	93-94	Compound
Manual	+66%	+37%	+26%	+13%	+34%
Experience	+55	-14	-9	-10	-2

Chart 7 shows the ratio of experience to manual, and this, remember, is experience to the indemnity manual. Back in 1990 actual experience was about 129–130% of manual, decreasing slightly to about 120% in 1991 and then it goes down to 75% in 1992 and to 43% in 1994. I think the reason for the decline in these numbers is twofold. First is the 130% of actual to manual that the client experienced in the

first year; they introduced some underwriting measures like trying to write better groups and not being so aggressive in some dubious groups. The second factor is that they started implementing managed care in a fairly significant, aggressive way. And so, due to the managed care and the magic of leveraging, we're experiencing this decrease. The question is, is it really reasonable to expect a 43% rate of managed care to indemnity manual? Yes, due to the managed care leveraging magic.

The impact of the first-dollar discount is significantly leveraged on \$180,000 specific. Table 5 shows that a 10% reduction in costs leads to a 24% decrease, so that you can reduce claims by 24% off of indemnity charges for a \$180,000 deductible with a 10% first-dollar discount. This increases with the first-dollar discount. The 20% first-dollar discount will give you 45%; a 30% discount results in 61%. If you can justify a 40% first-dollar discount on your managed care plan, you can take 74% off of your indemnity claim costs.

TABLE 5
MANAGED CARE DISCOUNT LEVERAGING

First Dollar Discount	\$180,000 Specific Discount
10%	24%
20	45
30	61
40	74

If we look at Chart 7, we see that in 1992 we're at about 75% of manual. What that's really showing is about a 10% overall managed care discount for the block of business as a whole. In 1993 we're at about 54% of manual, which corresponds very nicely to a 20% discount. In 1994, when we had 43% of manual, that corresponds to almost a 30% first-dollar discount for the block as a whole.

Let's discuss some of the diagnosis comparisons. What my client had as the largest percentage of claims was cancer, followed very closely by neonatal. Transplants were fairly low at that time relative to what has been presented by our other panelists.

As referred to earlier, in 1997, the SOA published a 1991-92 group medical insurance large claims database in *SOA Monograph M-HB97-1 Group Medical Insurance Large Claims Database Collection and Analysis*. This covered experience on claims greater than \$25,000. I have volunteered to be a member of the Research Committee that's charged with updating the study. We produced a data request form, which we have sent to another committee that is going to be studying credibility. Rather than send multiple requests out, we're hoping to kill two birds

with one data request. The Credibility Committee has modified this data request form. We'll get it back to our committee for review.. We're hoping to get this data request out to potential contributors by the end of the summer of 1999, and then it's probably going to be another two years anyway before we can publish data, knowing how things work.

One additional thing I just noticed when I looked through the June 1999 *Actuary* is that the 1991–92 data are now available for free at the SOA Web site. If you want to look at some of the data that we've been referring to, and if you don't want to spend the \$35 to get the disk or the book, you can look at the Web site.

Finally, I'll give my prediction of the future. I think we're going to see a return of high trend. As I mentioned before, I believe that the effect of managed care is going to have reached the maximum and that the traditional underlying price pressures are going to continue, and that will result in the future of continuing high trend. We've already seen some providers who have decided to pull out of some managed care plans because they're not willing to give the aggressive discounts that the risktakers are demanding of them. We're seeing some managed care backlash; that is, there are privacy issues so that we may not be able to look at past claims history when we're trying to pay insured claims. Also, there is the patient's bill of rights, which is winding its way through Congress. Provider choice would allow people to go out of network. If they're out of network, there are fewer controls on the costs. Finally, benefits like mandated benefits are causing increases in cost such as the two-day maternity stay and the four-day stay for caesarian rather than what had been down to one and three days based on the managed care.

All these will result in upward cost pressures and increased trend both in the first-dollar and large claims. The traditional pressure still exists. We have the aging population and workforce. As we get older and the retirement age goes up from 65 to 67, we're going to have an older workforce. Dan said we're not including that in trend; nevertheless, that's going to cause an upward pressure on prices for the employers. We're going to have continued new technology, such as the fertility benefits. Recently I've seen in the news that fertility for women who are past normal childbirth age is considered a disability and may need to be covered. The one thing I didn't show in the 1990–94 data was that our client had one \$1 million claim. That was for a low-birth-weight infant.

Mr. Wolak: I want to talk a little bit about self-insured large claims. First, I'll discuss claims in excess of \$100,000. Of course, now we've moved out of the HMO environment into a limited managed care environment. Table 6 is for claims in excess of \$100,000 above an underlying individual deductible, and generally the deductibles are averaging in the range of \$50,000 . I compared the 1997 average

claim for these different categories to 1998 and related it to what the first-dollar trend was for these claims. In total the increase in the first-dollar cost for the average claim was 4%. I excluded the "other" category, which included a large change in the number of claims from 1997 to 1998, the underlying first-dollar trend on these large claims was 6%. I didn't account for frequency changes in this study, but I thought it was interesting enough to share.

TABLE 6
CLAIMS IN EXCESS OF \$100,000
UNDERLYING INDIVIDUAL DEDUCTIBLE

	1997		1998		1st Dollar % Trend
	Number	Average Claim	Number	Average Claim	
Cancer	43	\$152	41	\$164	6%
Premature	16	182	14	200	8
Cardiovascular	27	163	40	187	11
Respiratory	12	229	15	236	2
Accidents	19	182	12	181	0
Other	39	230	73	213	-6
Total	156	186	195	196	4

What's happening for large claims in excess of \$100,000 over the underlying specific deductible? For one block, the total amount paid for large claims, claims over \$100,000, is increasing faster than the total amount paid on the block. For the second block, though, large claims are increasing at the same rate as overall claims. When I speak of overall claims on these two blocks, it's claims above a specific deductible that varies by group but averages close to \$50,000.

We've talked about leveraging. I assume many of you understand leveraging and have worked with that concept. Our conventional view would be that the trend for the portion of a claim exceeding a high deductible, if it's \$50,000 or \$100,000, would be some multiple of underlying trend. In this example, if we believe the underlying trend was 12%, a claim in one year, which was \$100,000 or \$112,000, the following year, the portion exceeding the underlying \$50,000 deductible would increase by 24%.

I'd like to go around the panel quickly to discuss what their perception of trend has been from 1997 to 1998 on large claims in excess of \$50,000.

Mr. Olsho: I'd say underlying trend is about 12%. When you leverage it you're probably going to be up around 20%.

Mr. Wittmann: Underlying trend is 7–9%. If translated that is a \$50,000 trend of 15–16%, or 20% at the higher levels.

Mr. Jackson: What I wrote down was what Tony said about the leveraged basis at the \$50,000 and higher depending on the deductible. Fifteen and 20 percent is what we have been seeing.

Mr. Wolak: I estimate that trend was in the range of 11–12% in 1997 and increasing up to 15–18% for 1998. Let's move forward to estimating/predicting trend for the period from June 1999 to June 2000.

Mr. Olsho: From 1999 to 2000, the underlying trend on the first-dollar claim is somewhere around 12% and reduces linearly on larger claims somewhere in excess of \$10,000 to like the quarter million down to 7%. On a leveraged basis it is about a 20% increase at a \$50,000 specific deductible; 24% at \$100,000. It then decreases to about 20% at \$250,000 and above.

Mr. Wittmann: I estimate that trend is going up somewhere, but I'm going to just say that the trend level is 15–20%, which is the same as it was in the past.

Mr. Jackson: Like I said, I believe that trend is going to be increasing. Since I was at 15–20% for 1998, I estimate trend to be 20–25% for 1999–2000.

Mr. Wolak: I'll go a little bit lower. I'll have to say 20% because we poor reinsurers are limited to what we can expect to price in the specific rates. I hope that trend isn't much more than that right now as we move to the future.

Mr. Jackson: I didn't say we could get it in our rates either!

From the Floor: From your presentations I infer that the trend for large claims obviously is increasing, and we have combined loss ratios of about 100%. It has been difficult to make money on underwriting. You have to make money on investments. How does your company optimize the growth of the reinsurance float to maximize investment income in today's soft reinsurance market?

Mr. Jackson: On the underwriting side, it has been a little difficult lately. We're struggling a bit there trying to catch up because we were a little behind on catching the increase in our costs.

Mr. Wolak: Probably the big issue is that the underwriters just have to increase the rates to the appropriate level. There's some catch-up needed in rating, at least for the stop-loss marketplace. Rates weren't increased for a couple years, so now we probably are just getting three years of increases at once.

Mr. Paul E. Stordahl: Tony, you briefly mentioned medical management programs, and I guess I'd like to hear from the reinsurers' representatives. Given that medical management programs are designed to identify high-risk patients and actively manage the delivery of care with the hope of avoiding a large acute incident, have you incorporated into your pricing or have you evaluated the experience of HMOs, which do incorporate active medical management programs?

Mr. Jackson: We certainly have some programs where we try to work with HMOs and encourage them to develop their own prenatal programs. We have ways to help them if they don't have their own programs, such as through some of our own staff and referring them to outside organizations. We haven't done any studies to indicate that there have been savings or reductions or anything like that. I really don't have any data that I can point at to answer that question, but we certainly think there's value in those programs. If you can keep the baby inside the womb for a couple of extra weeks and get that birthweight up, it will drive down costs. Whatever we can do to help that situation certainly has held down our costs.

Mr. Robert G. Lynch: In network plans, there is recent and increasing popularity of capitating major organ transplants to transplant networks, particularly for heart transplants and sometimes lung and liver transplants. This is especially true of large university hospitals that are willing to enter into such arrangements. Would you be willing to hazard a guess as to how much that would impact the cost at, say, a \$50,000 deductible for stop-loss, and how much would it impact trend?

Mr. Jackson: That's one part about the data on our transplant costs. We do have a network to which we refer people. There's basically global pricing where we pay a set rate up front. There are usually outlier situations where, at the end of a certain number of days, it'll revert to either a discount or hopefully a per diem after that. That's in the data that I presented. We believe that there's some significant savings on that for a stop-loss population at a \$50,000 deductible level. Savings could easily exceed 20% on the transplant costs alone. If transplants make up 10-20% of your total claims, and you've got a savings in excess of 20%, then you're talking about 4-5% savings on your whole block of business.

Mr. Wittmann: Obviously the driver, if you have a capitated program or a per-incident program for transplants, is the frequency. The secondary is what type of increases the managed care network is going to be giving you. I think, because of the number of organs available, the increase has slowed down. I've noted that Pennsylvania is considering at least a minimal payment for providing organs. What this is going to turn out to be is how efficient can the networks be at maintaining low increases? I think that remains to be seen.

Mr. Lynch: I'd like to make a comment on the SOA's study of large claims. I noticed that the percentage for neonates and newborns was low. The company I was with back in 1991–92 contributed to that study and that company only sold to individuals and small groups. They didn't provide maternity coverage and would decline anyone with an existing pregnancy or a history of a maternity problem. The comparison may not have been valid, and I would caution you, if you're doing another study, to look at the underlying underwriting used by the company that's contributing large claims data.

Mr. Hobson B. Carroll: I have a question relating to sort of a macro view of the self-funded stop-loss market, at least as I've come to understand some rather general results across the country. I think 1997 probably saw an average net risk premium loss ratio in the range of 120%, which is claims divided by premiums less expense loadings. Maybe there was a slight improvement in 1998. That is yet to be seen. But how do we get from, say, 115% to a required 90% in the face of leveraged trend. Or, is everybody just moving some magic cups around out there?

Mr. Olsho: At the very least I do have some clients that have been profitable over that entire time period. In fact they have shown consistent underwriting profits on their stop-loss block of business since 1991, and the major reason that they've been profitable is because they've maintained underwriting discipline. One of the reasons that they've wanted to maintain underwriting discipline is because they had a nice profit sharing arrangement. I think the way to move there is to have the requirement from the risk takers, being the reinsurer or the insurance company, of really maintaining underwriting discipline.

Mr. Carroll: David, is that another way of saying that those clients didn't grow during that time period?

Mr. Olsho: The growth was certainly less than trend.

Mr. Wolak: To add a point or two, I think at times we have periods like 1996–97 where there was a hope that managed care would be some type of magic wand and would be saving dollars. But it's really a simple business. The loss ratios which Hobson brings up have occurred or been even worse than 120% when people held rates at renewal or lowered rates due to the belief that managed care was going to continue to hold claim trend or reduce claim trends. It simply didn't happen. The simple game and key is to monitor the actual-to-manual rates. You must also monitor the rate increases. If you have a product that has health care trend, you just have to continue to increase the rates.